

REMARKS

The claims have been amended to more clearly define the invention in view of the telephone interview had with the Examiner where the prior art was discussed and the rejections were discussed and Applicant's attorney set forth the reasons why the invention is patentable over the prior art of record.

Five claims remain in this application. Claims 15, 17 and 24 were rejected under 35 U.S.C. §102(b) as being anticipated by Collito, while Claims 15 and 17 were rejected as unpatentable over Moschik in view of Johnston, Claim 16 was rejected as unpatentable over Collito in view of Chikami as well as being unpatentable over Moschik in view of Johnston and further in view of Chikami. Claim 25 was first rejected as unpatentable over Collito in view of Fujita and secondly as unpatentable over Moschik in view of Johnston and further in view of Fujita. Thus rejection of all of the claims was made under Collito as a primary reference either on anticipation or as being obvious in view of Collito and other secondary references.

The present invention as defined by the claims is to an orthodontic appliance that is completely made by the manufacturer with a base and then shipped to a user. It is ready to be bonded to a tooth by the user, and will normally be a bracket or a tube.

This base is unique in that it is molded onto the body of the bracket such that a peripheral lip is defined around the appliance body for purposes of enhancing the connection and bonding between the appliance and the resin base to prevent separation between the appliance body and the base. The peripheral lip which overlaps a part of the appliance body

assures that the base is properly bonded to the appliance to not only withstand the forces of mastication but also to withstand the forces applied to the appliance body by the main archwire and/or an auxiliary or secondary archwire during use by the patient, thereby maintaining the integrity of the appliance during use and as mentioned on page 12 of the specification. This tends to prevent failure of the base separating from the appliance body during treatment of a patient and particularly during the occlusal forces that are imparted to appliances during mastication and forces incurred by the archwire.

Secondly, the resin base is light permeable so that when mounting the appliance on a tooth and utilizing light-cured adhesive, a stronger bond is obtained because the light penetrating the edges of the base will be allowed to reach further under the base to produce such a stronger bond, as explained on pages 5 and 6 of the specification.

All of the claims as now amended include the features of the light-permeable resin base as well as the peripheral lip for overlapping a part of the appliance body. Moreover, the claims now specify the feature of the appliance with the base being made for shipment to the user. Thus, the user, an orthodontist, would receive the appliance with the base on the appliance body so the appliance as such not only includes an appliance body with its archwire slot or opening but also the base which is used for bonding to a tooth and which later facilitates removal from a tooth.

As above noted, Collito has been used in the rejections of all of the claims, some on anticipation, and others on obviousness with additional references. It is submitted that Collito is not a proper reference as a reference that is anticipatory of certain claims or as a primary reference in combination with other references to reject other claims.

Collito discloses 26 different embodiments in 52 figures. Only five of those embodiments concern the resilient backing for a bracket body which the Examiner relies on to reject the claims. The resilient backing 14 is like rubber band material (Col. 4, line 18), and is disclosed as being adhesively secured to the bracket body (Col. 4 lines 18-23), and the resilient backing is defined as being of a resilient material such as a natural or synthetic rubber or a suitable plastic such as a thermosetting or thermoplastic resin (Col. 4, lines 5-9). In line 23 of Column 4, brief mention is made that the bracket could be molded into the resilient backing although no drawings show such an embodiment. The disclosure also mentions in lines 24-28 of Column 4 the bracket and backing may be formed together of rubber or plaster as long as the backing is flexible. It is further mentioned in Column 4, lines 29-36 that the appliance of Collito is securable to the tooth of a patient by use of an adhesive. The particular adhesive described is what is commonly known as a "super glue." It is submitted that light-cure adhesive was not known in 1960 when the Collito application was filed. Applicant's attorney explained during the telephone interview that through research the first patent found relating to light-cure adhesive was the Cohl 3,745,653 patent, which was filed in 1971. As explained in Collito in Column 4, lines 65-75, the adhesive used to bond the Collito appliance to teeth is one that provides a very tenacious bond and very rapidly sets up. Nowhere in Collito is the resilient backing described as being light-permeable. While it is suggested in Collito that the epoxy resin sealers used to isolate the site where a bracket base is to be mounted on a tooth may be transparent (Col. 9, line 45) and also that the bands 92 in the embodiments of Figs. 37-39 may be transparent to light (Col. 10, line 53), these teachings cannot be extended to the resilient backing. Accordingly, Collito cannot be relied on to teach the resilient backing 14 to

be light-permeable. Of course, there is no reason for it to be light-permeable because the adhesive used to bond these brackets to teeth are clearly disclosed as being of the type that will rapidly set up and making it evident it is chemically curable.

Summarizing, Collito does not teach an orthodontic appliance for shipment to a user as defined by the claims which includes a light-permeable resin bonding base molded onto the lingual side of the body of the appliance such that an integral peripheral lip is formed that overlaps the appliance body. It is therefore submitted that rejection of Claims 15, 17 and 24 as being anticipated by Collito is improper, and it should be withdrawn.

Similarly, for the reasons given above with regard to the teachings in Collito, it is submitted that Collito does not disclose a structure as proposed by the Examiner and therefore cannot be properly employed as a primary reference in conjunction with other secondary references to reject other claims. Because the appliance of the invention as defined by the claims not only facilitates the use of light-cure adhesive bonding when bonding the appliance to a patient's tooth, it also assures the integrity of the resin base with the body of the bracket to prevent separation during use by a patient and being subjected to forces not only applied by the archwires but also by mastication. Further, as above mentioned, it is submitted that Collito does not teach molding of a resin base onto the body of a bracket or appliance such that a peripheral lip is formed around the body of the bracket or appliance to enhance the bonding connection between the resin base and the bracket or appliance body.

The Examiner also rejected Claims 15 and 17 under 35 U.S.C. §103 as being unpatentable over Moschik in view of Johnston, contending that it would be obvious to one of ordinary skill in the art to have the metallic body in Johnston in Moschik. Contrary to the

Examiner's assertion, it is submitted that Moschik does not disclose or teach the resin bonding base 12 being molded into the lingual side of the body of the bracket such that at least a part of the body is embedded in the base and includes a peripheral lip overlapping a part of the body. Rather, it discloses with respect to Fig. 7 and as described in Column 6 that the holding part 12 (base) is preferably made of a plastic material while the guiding part 13 (bracket body) is made of a ceramic material and that a transition area 55 exists between the holding part and the guiding part. Moschik explains that the holding part may be produced by an extrusion molding method, injection molding, or the like, where the tooth side 30 may receive its appropriate form by a subsequent treatment and would be joined to the guiding part 13 by an adhesive layer 60 (Col. 6, lines 33-34). The holding part or base 12 is not molded to the bracket body 13. Moschik also suggests that the attachment body 61 may be connected to the holding part 12 by a welding process or in a form locking manner. Nevertheless, this is not a disclosure that teaches the molding of a base on the bracket body. For this reason alone, Moschik should not be used as a basic reference in view of the limitations in Claims 15 and 17, which clearly set forth that the base be molded to the appliance body. Johnston was only used by the Examiner to teach a metal bracket body.

It will be further appreciated that Johnston appears to show the base that is molded to the bracket body in Fig. 13 and having a peripheral lip around the bracket body, but it discloses the chairside mounting of the bracket body to a tooth by use of catalyst layers 19 and 21 and a resin layer 25. (See Columns 8 and 9, and the bridging paragraph between these columns.) Johnston does not suggest molding of a resin base to an appliance body and shipment to a user, and therefore does not satisfy the deficiencies that are

in Moschik. It is therefore submitted that Claims 15 and 17 are patentable over Moschik and Johnston, and withdrawal of this rejection should be made.

For reasons given above with respect to the teachings in Collito, the rejection of Claim 16 on Collito in view of Chikami should be withdrawn. Chikami merely shows a polycarbonate bracket 1 attached to a base plate 3 by an adhesive layer 2, where the base plate is made of a photo-curing resin with adhesivity. The disclosure in Chikami of a base plate that may be made of an epoxy resin, an acrylic resin, or a phenolic resin is not sufficient to overcome the deficiencies of Collito as above mentioned. Accordingly, this rejection should be withdrawn.

The Examiner also rejected Claim 16 as unpatentable over Moschik in view of Johnston further in view of Chikami on the basis that Chikami also teaches an orthodontic appliance comprising a resin base of acrylic. For reasons given above regarding the deficiencies of Moschik, it is submitted that this claim is also patentable over these references, and this rejection should be withdrawn.

The Examiner rejects Claim 25 as being unpatentable over Collito in view of Fujita, asserting that Fujita teaches an orthodontic appliance with a groove in the appliance body and it would be obvious to modify Collito with such a groove to form an opening. For reasons given above with respect to the deficiencies of Collito, it is submitted that this rejection should be withdrawn. Additionally, with respect to Fujita, it merely discloses a groove 10 formed in the body of an appliance and does not disclose the combination of the groove in the body as well as in the base as now more clearly defined in Claim 25. Specifically, Claim 25 now defines a first groove formed in the appliance body and a second groove formed in the base coating

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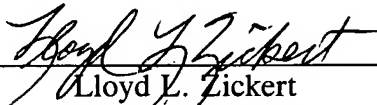
with the first groove to define an opening for receiving an arm of an auxiliary appliance. This feature is not taught in Collito or Fujita. Further, the Collito reference does not teach an appliance having the features of the invention as noted above.

It is therefore respectfully submitted that Claim 25 is patentable over Collito in view of Fujita and withdrawal of this rejection should be accorded.

Finally, the Examiner rejected Claim 25 also as being unpatentable over Moschik in view of Johnston and further in view of Fujita. For reasons given above in connection with the Moschik, Johnston and Fujita references and in view of the amendments made to Claim 25, it is respectfully submitted that Claim 25 is patentable over these references, and this rejection should be withdrawn.

An earnest endeavor has been made to place this application in condition for formal allowance, and in the absence of more pertinent prior art, such action is courteously solicited.

Respectfully submitted,



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